Salt Management in San Joaquin Valley

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Management Options

- BMP (grower initiated on-site control)
  - Source reduction
    - Improve irrigation efficiency
    - Root zone extraction
  - Water reuses
- Infrastructure building (public works projects)
  - Drainage water treatments
  - Evaporation ponds
  - River releases
  - Land retirement
  - Regional groundwater management
- Institutional reformation

Implementation

- Effective institutional arrangements
  - Policy formulation
  - Infrastructure building
  - BMP
  - Monitoring and abatement
- Optimization: no perfect answer
  - Uncertainties and unknowns
  - Continuingly evolving issues
  - Competing interests
- Management vs. “once for all solution”
  - Long term
  - Information dissemination
  - Research and development

University of California

- Mission: research and teaching
- Ability of conducting scientific research and disseminating information and technology
  - Faculty and their students
  - CE specialists and advisors
  - Organized and mission-oriented research programs

UC Public Outreach

- A network throughout San Joaquin Valley for applied research and information dissemination
  - CE advisors in 8 counties, covering all aspects of agriculture
  - Kearney Agricultural Research and Extension Center
  - CE Specialists in UCB, UCD, and UCR
- Approaches
  - Applied research
  - Conferences, workshops, training sessions, field demonstrations
  - Bulletins, manuals, pamphlets, and technical journal articles
- Frontline in salt management
  - Develop and promote BMP
  - Source control, minimizing impacts and scale down infrastructures

R & D

- Support implementation of current plan and explore future potentials
- Promising prospects
  - Newly gained knowledge and experiences
  - Emerging technologies
    - GIS
    - GPS
    - Remote sensing
    - Versatile and real time sensors
    - Robotic and intelligent machines
  - Computation capacity and speed
- New frontiers

Research Paradigm

- Precision management practice (PMP)
  - Delivery of water and other salt containing amendments
    - In timely manner
    - To critical locations
    - At appropriate amounts
    - Achieving optimal results
  - Minimized inputs, reducing downstream impacts and infrastructure needs
- Mathematical modeling
  - Linking interactive and dynamic processes and components
  - Iterative process model construction and validation
  - Models will improve with each cycle
- Optimization
  - Integrating spatial and temporal-based measurements
  - Real time data processing and optimization,
  - Identification and implementation of the field management

Our Agenda

- Support research
  - Salinity Drainage Program
  - Prosser Trust
- Coordinate UC water resources related activities
  - Annual salinity drainage conference
  - Electronic repository of technical information (e-scholarship)
  - UC-wide water resources coordinating conference
  - Data portal for efficient irrigation and water use (planned)
  - Internet blog on water resources management (planned)
    - News summaries
    - Commentaries on critical issues
    - Q & A

Partnership

- Has been a significant participant
  - Professor John Letey
  - Other faculty
- On board and in the loop for the future developments
- Liaison